A.2.2 COSMOCHEMISTRY

1. Scope of Program

The Cosmochemistry Program (CCP) supports scientific investigations that may involve laboratory studies of a variety of extraterrestrial materials (meteorites, cosmic dust, and lunar samples), that are cosmochemical in nature, or that are aimed at understanding the geochemical nature of the solar system bodies (planets, satellites including the Earth's Moon, and satellites of the outer planets, and small solar system bodies); or cosmochemical studies concerned with the formation and chemical development of the solar system. The goals of this program are to support cosmochemical research projects that increase the understanding of the origin of the solar system, and the processes by which its planets and small bodies have evolved to their present state; and/or yield direct information about the formation of the solar system, the exact time scales for planetary formation and history, the nature and development of planetary surfaces, and the past activity of the Sun and cosmic rays. NASA is particularly interested in proposals for sample research projects that closely support its activities for exploring the solar system; determining its nature, origin, and history; and/or that contribute to the development of techniques for such further exploration. Individual investigations may involve direct measurements of physical and chemical properties, or research efforts that contribute new data, that analyze and synthesize existing data, or that combine both kinds of activities.

Examples of the kinds of research supported by this program include:

- cosmochemical studies of solar system formation;
- studies of chemical differentiation of planetary bodies;
- laboratory studies of phase stability, thermal emission, chemical partitioning, and other processes necessary to interpret planetary data;
- synthesis of previously obtained geochemical data;
- direct measurements of mineral compositions, major and trace element chemistry, isotopic compositions, radiometric ages, magnetism, radiation exposure effects;
- petrologic studies of materials from Solar System bodies;
- lunar geochemical and petrologic studies, lunar craters and microcraters, lunar physical and mechanical properties; and
- proposals that are designed to obtain basic scientific information that might enable the utilization of extraterrestrial resources.

However, the CCP will not consider proposals that are designed to demonstrate a technology that could be important to extraterrestrial resource utilization. Though no priorities are imposed on the general kinds of investigations, an ideal program is envisaged as a balance among these objectives, consistent with the quality of submitted proposals and their relevance to the current CCP.

This program is also interested in supporting certain types of research on terrestrial samples or with terrestrial analogs when such efforts contribute to overall program goals

in cosmochemistry. Specific objectives of such terrestrial research should address key geochemical processes in early terrestrial evolution; terrestrial history in terms of general solar system processes; or the reasons for differences in evolution among the various planetary bodies, including Earth, the Moon, and parent bodies of meteorites. Proposals to analyze terrestrial samples or their analogs should clearly develop the nature of the planetary connection. The specific connection to the wider range of planetary processes is a key factor in determining the success of such proposals.

Proposals for topical conferences, workshops, consortia, symposia, or other new initiatives related to Cosmochemistry progrm and that are generated through the initiative of the proposer may also be proposed through this NRA. For more information about the type of research supported by this program, abstracts for currently funded investigations are available online at http://spacescience.nasa.gov/, link through "Research Solicitations" to "Past/Archive solicitations & Selections."

An important goal of the Solar System Exploration efforts is to facilitate access to data and extraterrestrial sample material for certain scientific and educational purposes, in addition to NASA-supported research projects. The NASA Johnson Space Center, Houston, Texas, is responsible for the security and access to the lunar sample collection, as well as the interplanetary dust particles collected by high altitude aircraft and meteorites collected in the Antarctic by field parties supported by the National Science Foundation (NSF). For information on how to obtain any of the specimens in these collection, contact:

Office of the Curator
Code SN21
Johnson Space Center
National Aeronautics and Space Administration
Houston, TX 77058-3696.

2. Programmatic Considerations

The National Science Foundation (NSF) may consider a wide range of proposals (from domestic organizations only) that contribute new knowledge in the area of cosmochemistry and related fields. The same proposal may be submitted to both NASA and NSF if desired; however, such proposals must clearly state they are being submitted to both agencies in the proposal section entitled *Current and Pending Support* (see Chapter 2 of the *NASA Guidebook for Proposers* as discussed in this NRA's Summary of Solicitation).

It is estimated that the funding level for this program for Fiscal Year 2003 will be approximately $13.1M and that this level of funding will support approximately 105 research investigations, including both new proposals, as well as in-progress multiple year awards for which progress reports are due. Awards under this NRA are subject to the availability of funds.

Status Reports: Holders of existing, multiple year awards in this Program Element that are entering their second or third year of a three-year award from a previous NRA must submit a Status Report (previously called an Annual Report). This Status Report should cover the progress made toward completing the originally proposed research since the initiation of the award or last year's deadline for new proposals, whichever came last. This Status Report is due by the same deadline as that for new proposals for this program element (see Table 1 or 2 in the Summary of Solicitation of this NRA). These Status Reports will be screened by the same peer review panel that will be convened to review new proposals as an aid to NASA's evaluation of existing awards. Such a Status Report should not exceed three single-spaced, typewritten pages with roughly two pages used for a description of the progress made during the previous period and the remainder for a statement of the work planned for the coming year (Note: this three page limit does not include references, figures, reprints, or appendices). The Status Report should be prefaced by a new electronic proposal *Cover Page* submitted through the Web at the same site specified for new proposals in the Summary of Solicitation of this NRA (Note: the home page for this program element will provide the option to designate whether the *Cover Page* is for a new proposal or for a Status Report). Any request for an augmentation to the budget relative to the current approved funding level must be supported by detailed information in conformance with Section 2.3.10 of the *NASA Guidebook for Proposers*. Submission of hard copies of the Status Report must include an original plus four copies. Also note that it is expected that within a year a new electronic proposal data system that is now under development will begin to automatically notify holders of existing awards 75 days in advance of their award's anniversary date to submit the Annual Progress Report that is required to implement the next funding supplement of their award. The conflict of possibly calling for two reports per year for existing awards in this Program Element will be resolved at that time.

IMPORTANT INFORMATION

As discussed in the *Summary of Solicitation* of this NRA, the Office of Space Science (OSS) is now using a single, unified set of instructions for the submission of proposals. This material is contained in the document entitled *NASA Guidebook for Proposers Responding to NASA Research Announcement – 2001* (or *NASA Guidebook for Proposers* for short) that is accessible by opening URL http://research.hq.nasa.gov, and linking through the menu item "Helpful References," or may be directly accessed online at URL http://www.hq.nasa.gov/office/procurement/nraguidebook/. This NRA's Summary of Solicitation also contains the schedule and instructions for the electronic submission of a *Notice of Intent* (NOI) to propose and a proposal's *Cover Page/Proposal Summary*, which now also includes the required *Budget Summary*, and the mailing address for the submission of a proposal.

Questions about this program element may be addressed to the cognizant Discipline Scientist:

Until April 1, 2002:

Mr. Joseph M. Boyce
Research Program Management Division
Code SR
Office of Space Science
NASA Headquarters
Washington, DC 20546
Telephone: (202)358-0302
E-mail: joseph.boyce@hq.nasa.gov

After April 2, 2002, a new Discipline Scientist for this program will be announced as an amendment to this NRA.